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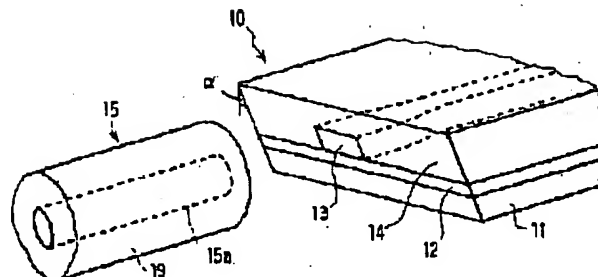
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APPLICANT : HITACHI CABLE LTD;

INVENTOR : UETSUKA NAOTO;

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TITLE : OPTICAL WAVEGUIDE AND ITS
PRODUCTION AS WELL AS OPTICAL
WAVEGUIDE MODULE USING THE
SAME



ABSTRACT : PROBLEM TO BE SOLVED: To make it possible to lessen the connection loss to an optical fiber without increasing production steps by forming the cores at the input side end face or output side end face of an optical waveguide formed on a substrate to a form widening to a taper shape only in the transverse width with the nearer the respective end faces.

SOLUTION: The optical waveguide 10 is formed with a buffer layer 12 on the substrate 11 and is formed with the core 13 of an approximately rectangular sectional shape on this buffer layer 12. Further, the clad layer 14 is so formed as to cover the core 13. The optical waveguide 10 is formed as such a tapered waveguide of which the core 13 is fixed in the thickness direction and widens gradually only in the transverse width with the nearer the end face of the waveguide. The taper spreading angle θ is about 1° and is more preferably within 3° at which radiation loss is sufficiently negligible. The waveguide is directly disposed as a margin for polishing between the tapered waveguide and the waveguide end face. The waveguide end face is polished diagonally at a prescribed angle α (for example, 8°) to the perpendicular surface in order to lessen the connection loss and as remedy for the reflected return light at the end face.

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